

REMARKS

Claim Rejections

Claims 1-6 and 19 are rejected under 35 U.S.C. §102(e) as being anticipated by Chen et al. (U.S. 6,468,824). Claims 1-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Chen et al. Claims 1-15 and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kneissl et al. (U.S. 6,448,102) in combination with Chen et al.

Drawings

It is noted that no Patent Drawing Review (Form PTO-948) was received with the outstanding Office Action. Thus, Applicant must assume that the drawings are acceptable as filed.

Claim Amendment

By this Amendment, Applicant has canceled claims 14 and 19 and has amended claims 1 and 9. It is believed that the amended claims specifically set forth each element of Applicant's invention in full compliance with 35 U.S.C. § 112, and define subject matter that is patentably distinguishable over the cited prior art, taken individually or in combination.

The reference to Chen et al. discloses a method for forming a semiconductor device having a metallic substrate including a thick metal layer (70), a p-type metallic ohmic electrode (68), an optically transparent layer (66), a optical extraction layer (64), a transparent layer window layer (62), and a bonding pad (78).

Chen et al. teach a transparent layer of p-type GaP, AlGaAs, or thin GaAs, but does not teach a patterned conductive oxide layer 66 that is either a conductive oxide layer or a patterned layer. Chen et al. state column 5, lines 25-27:

The epitaxial semiconductor consists of the optically transparent layer 66 of p-type GaP, AlGaAs, or thin GaAs....

In Chen et al., the layer (66) is equivalent to layer 110 of the present Application. The layer 66 in FIG. 6 becomes two LEDs after cutting. The layer (66) does not have the ohmic contact metal grid or dot pattern layer (112 in FIG.6C of this Application).

On page 2 of the outstanding Office Action, the Examiner admits that Chen et al. do not teach the barrier layer formed between the metal reflection layer or the metal electrode layer 68 and the adhesive layer.

Absent a written example, the Applicant respectfully traverses the Examiner's conclusion that refractory metal used as barrier metal layer between two metal layers to stop diffusing the metal from each other of successive metal layers is well known in the art.

Chen et al. suggest that high temperature annealing will decrease the reflective efficiency (column 5, lines 43-44), but that colder-forming the metallicity ohmic electrode (contact) or intervening a Bragg reflector between the metallic ohmic electrode 68 and the optical extraction layer 64 will improve reflectivity (col. 5, lines 44-49). Chen et al. do not suggest using the non-absorbing material as a diffusion barrier layer.

Chen et al. do not teach the transparent conductive oxide layer having one of a metal grid and a dot pattern formed therein and located adjacent to the light emitting structure; the transparent conductive oxide layer being formed to prevent the metal reflective layer from reacting with the light emitting layers while annealing for improving ohmic contact of electrodes of the light emitting diode; nor do Chen et al. teach a diffusion barrier layer formed in between the reflective metal layer and the metal bonding layer.

It is axiomatic in U.S. patent law that, in order for a reference to anticipate a claimed structure, it must clearly disclose each and every feature of the claimed structure. Applicant submits that it is abundantly clear, as discussed above, that Chen et al. do not disclose each and every feature of Applicant's amended claims and, therefore, Chen et al. could not anticipate these claims under 35 U.S.C. § 102. Absent a specific showing of these features, Chen et al. cannot be said to anticipate either of Applicant's new claims under 35 U.S.C. § 102.

The cited reference to Kneissl et al. teaches a method for a nitride based layer diode with a growth substrate being removed. Kneissel et al teach a Ti metal layer 1117 formed on a light emitting layer 1106; Pb Sn adhesive or solder layer 1141 formed on the metal layer 1117; and a metal substrate such as copper 1138 formed on solder layer.

On page 3 of the outstanding Office Action, the Examiner admits that "Kneissel et al. do not teach transparent conductive layer formed beneath the metal layer, (2) barrier layer between solder layer and metal layer."

Kneissl et al. do not teach the transparent conductive oxide layer having one of a metal grid and a dot pattern formed therein and located adjacent to the light emitting structure; the transparent conductive oxide layer being formed to prevent the metal reflective layer from reacting with the light emitting layers while annealing for improving ohmic contact of electrodes of the light emitting diode; nor do Kneissl et al. teach a diffusion barrier layer formed in between the reflective metal layer and the metal bonding layer.

Even if the teachings of Chen et al. and Kneissl et al. were combined, as suggested by the Examiner, the resultant combination does not suggest: 1) the transparent conductive oxide layer having one of a metal grid and a dot pattern formed therein and located adjacent to the light emitting structure; 2) the transparent conductive oxide layer being formed to prevent the metal reflective layer from reacting with the light emitting layers while annealing for improving ohmic contact of electrodes of the light emitting diode; nor does the combination suggest 3) a diffusion barrier layer formed in between the reflective metal layer and the metal bonding layer.

It is a basic principle of U.S. patent law that it is improper to arbitrarily pick and choose prior art patents and combine selected portions of the selected patents on the basis of Applicant's disclosure to create a hypothetical combination which allegedly renders a claim obvious, unless there is some direction in the selected prior art patents to combine the selected teachings in a manner so as to negate the patentability of the claimed subject matter. This principle was enunciated over

40 years ago by the Court of Customs and Patent Appeals in In re Rothermel and Waddell, 125 USPQ 328 (CCPA 1960) wherein the court stated, at page 331:

The examiner and the board in rejecting the appealed claims did so by what appears to us to be a piecemeal reconstruction of the prior art patents in the light of appellants' disclosure. ... It is easy now to attribute to this prior art the knowledge which was first made available by appellants and then to assume that it would have been obvious to one having the ordinary skill in the art to make these suggested reconstructions. While such a reconstruction of the art may be an alluring way to rationalize a rejection of the claims, it is not the type of rejection which the statute authorizes.

The same conclusion was later reached by the Court of Appeals for the Federal Circuit in Orthopedic Equipment Company Inc. v. United States, 217 USPQ 193 (Fed.Cir. 1983). In that decision, the court stated, at page 199:

As has been previously explained, the available art shows each of the elements of the claims in suit. Armed with this information, would it then be non-obvious to this person of ordinary skill in the art to coordinate these elements in the same manner as the claims in suit? The difficulty which attaches to all honest attempts to answer this question can be attributed to the strong temptation to rely on hindsight while undertaking this evaluation. It is wrong to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. Monday morning quarterbacking is quite improper when resolving the question of non-obviousness in a court of law.

In In re Geiger, 2 USPQ2d, 1276 (Fed.Cir. 1987) the court stated, at page 1278:

We agree with appellant that the PTO has failed to establish a *prima facie* case of obviousness. Obviousness cannot be established by combining the

teachings of the prior art to produce the claimed invention, absent some teaching suggestion or incentive supporting the combination.

Applicant submits that there is not the slightest suggestion in either Chen et al. or Kneissl et al. that their respective teachings may be combined as suggested by the Examiner. Case law is clear that, absent any such teaching or suggestion in the prior art, such a combination cannot be made under 35 U.S.C. § 103.

Neither Chen et al. nor Kneissl et al. disclose, or suggest a modification of their specifically disclosed structures that would lead one having ordinary skill in the art to arrive at Applicant's claimed structure. Applicant hereby respectfully submits that no combination of the cited prior art renders obvious Applicant's new claims.

Summary

In view of the foregoing, Applicant submits that this application is now in condition for allowance and such action is respectfully requested. Should the Examiner not be of the opinion that this case is in condition for allowance, it is requested that this amendment be entered for the purposes of appeal, since it materially reduces the issues on appeal by cancelling claims 14 and 19, thereby rendering moot the outstanding rejections under 35 U.S.C. § 102 and § 103. It is not believed that the foregoing amendments require any further searching and/or consideration on the part of the Examiner, since such amendment merely combines previously searched claims.

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Should any points remain in issue, which the Examiner feels could best be resolved by either a personal or a telephone interview, it is urged that Applicant's local attorney be contacted at the exchange listed below.

Respectfully submitted,

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